**Technology Integration:**

Does it help or hinder student learning?

CBSE 7201T- Seminar in Applied Theory and Research 1

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**Abstract**

**Introduction:**

As technology continues to advance and become incorporated into classrooms, educators need an intervention into its appropriate purposes. The use of smartphones and texting has distorted the way in which students write. Some of the students I’ve encountered will use texting abbreviations in their school papers instead of writing out the words. Students are also too dependent on “Google” as an information source, when, in fact, it is not always reliable or scholarly. While there are many advantages of technology implementation, educators must be aware of the drawbacks of this technology use as well.

**Statement of the problem:**

Technology integration is a current educational issue, and my research project. I would like to know if technology integration helps or hinders student learning. Initially, my thoughts were entirely in favor of technology integration such as the use of smart boards, laptops, I-pads, and E-readers. However, I have seen many students who get distracted by these modern technologies. Some of the students I’ve taught as a substitute teacher use computer time to get away with not completing classwork. Prior research has shown that there are both pros and cons to the use of technology in the classroom.

**Literature Review:**

*Pros of technology integration:*

Technology-rich learning environments bridge the gap between knowing and doing, thereby moving knowledge from an inert to an active state as it is applied to immediate problems presented through the technology (Cavanaugh, Dawson, & Ritzhaupt, 2011). Incorporating technology into project-based learning enables the students to experience how to learn with technology as an active agent in their learning (Wang, Ke, Wu, & Hsu, 2012). Computer games can be used as an information and communication technology (ICT) in formal learning environments to support students in geography learning and increase their motivation while making learning fun (Tuzun, Yilmaz-Soylu, Karakus, Inal, & Kizilkaya, 2009).

In the social ecology of ICT implementation in schools, it was likely that organizational interventions and pedagogical interventions interacted with each other to affect changes in student learning (Wong and Li, 2011). Mobile learning environments can enhance natural-science, outdoor, inquiry-based learning (Liu, Peng, Wu, & Lin, 2009). Most students preferred mobile learning activities to lectures because of such activities’ ability to promote hands-on tasks, observation, and inquiry-based experiences (Liu, Peng, Wu, & Lin, 2009).

When asked to create digital products such as presentations, movies, web sites, and podcasts (i.e., learn by creating digital products available to wider audiences), students have the opportunity to organize, re-present, and make public (visualize) their understandings (Hernandez-Ramos & De La Paz, 2009). The e-learning experience seemed positive for all above and beyond numerical test scores, and even those who could be labeled as low-achieving were metacognitively aware of their own learning and motivation to learn (Chandra & Lloyd, 2008).

Learning about technology should be embedded within sound instructional practices (Bourgeois & Hunt, 2011). Modern mass media and communications technologies provide enormous capacity for individuals, groups, and institutions (Bigum, Knobel, Lankshear, & Rowan, 2003). When teachers use digital tools to support students in researching, evaluating, organizing, transforming, writing, and publishing what they learn for a wider audience, they are encouraging students to write with a purpose, an authentic voice, and to create a meaningful representation of their work (Frye, Trathen, & Koppenhaver, 2010). Authentic tasks and technology are a feasible combination for at-risk students in elementary school (Kemker, Barron, & Harmes, 2007).

*Cons of technology integration:*

Interactive White Board (IWB) usage leads to less student to student interactions, as well as a diminished role of the teacher (Blau, 2011). Fourth-grade students who reported that they frequently used computers for schoolwork in science showed lower levels of science achievement (House, 2012). Compact-disc read only memory (CD-ROM) storybooks have the potential to promote passivity, putting readers into a sort of “spectator stance” in which they let the computer do the work of reading rather than becoming actively engaged in the reading process (Lefever-Davis & Pearlman, 2005).

School technology may exacerbate existing social inequalities- students from all socio-economic status (SES) backgrounds tended to have high interest and positive views about the value of ICTs, but students from low-SES families expressed lower confidence in their ICT skills (Vekiri, 2010). In a study of the effects of technology integration, results indicated that in terms of educational outcomes, although there were gains in critical thinking, there was little student engagement with technology (Simpson, 2010). Student learning outcomes cannot increase if teachers don’t know how to use technology. Findings from another study indicate that classroom teachers do not demonstrate competency in technology (Bailey, Shaw, & Hollifield, 2006).

*Instructional Strategies for technology integration:*

Training and support around instructional technology integration must zoom in on teachers’ attitudes and beliefs about technology (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012). School practices in the areas of principal support and teacher collaboration around software use are necessary components for effective technology integration (Means, 2010). It is critical that evidence-based practices that address literacy skills be in place across all tiers of a school’s instructional settings and that practitioners are armed with a menu of appropriate information technology (IT) options to augment existing strategies (Kennedy & Deshler, 2010).

A key premise of response to intervention (RTI) is that effective practices will improve the instruction for all students, especially those with learning disabilities (LD), and, thus, enhance educational outcomes (Smith & Okolo, 2010). If technology- based solutions for students with LD are to be considered and integrated, they too must provide evidence of the effectiveness of a technology-based instructional practice (Smith & Okolo, 2010). Teachers felt they were skilled enough to use a variety of software applications for meaningful learning and implemented the types of instructional strategies that are consistent with student-centered learning and best uses of technology to support learning (Grant, Ross & Wang, 2005).

Schools that make Adequate Yearly Progress (AYP) provide professional development activities that teachers perceive as helping them understand effective instructional strategies based on scientifically based research; as helping them understand effective instructional strategies that improve student academic achievement; and as improving their use of technology in the classroom (Wolff, McClelland, & Stewart, 2010). When early childhood teachers design lessons by integrating technology with the essential characteristics for teaching early childhood mathematics, children are more likely to develop conceptual understandings and positive dispositions toward mathematics at a young age (Linder, 2012).

To facilitate effective technology integration, professional developers and school administrators should promote and develop hands-on, collaborative, and individualized professional development activities for their respective teachers (Sugar & Wilson, 2005).

*Theorists on technology integration:*

All students may receive a curriculum tailored to their needs, learning style, pace and profile of mastery, and record of success with earlier materials and lessons. Computer technology permits us to realize, for the first time, progressive education ideals of “personalization” and “active, hands-on learning” for students all over the world (Gardner, 2000). Howard Gardner’s Theory of Multiple Intelligences states that there are several different types of intelligences. These include: verbal/linguistic, logical/mathematical, kinesthetic, visual/spatial, musical, interpersonal, intrapersonal, and naturalistic. Gardner’s theory suggests that children learn in different ways.

For the visual learner, interactive multimedia such as a smart board may very well be a great learning tool. The smart board also offers virtual manipulatives for the kinesthetic learner. Teachers who create math lessons with instructional technology appeal to Gardner’s theory of multiple intelligences by offering students different ways of learning the material based on their learning needs. Instructional strategies that focus on teacher attitudes and beliefs about technology foster improvement in implementation of technology in the classroom. Gardner’s belief in customizing education based on a student’s learning style can only occur if teachers have positive attitudes about the technology they are utilizing.

John Dewey believed in intellectual equipment. There is no question that would-be pioneers in the educational field need an extensive and severe intellectual equipment (Dewey, 2009). Intellectual equipment changes with the times, thus modern technology can be considered intellectual equipment for the current times. John Dewey believed in experimentation, and thus, would believe in new experimentation via technology. John Dewey believed students thrive in an environment where they are allowed to experience and interact with the curriculum.

Creating professional development instructional strategies that are collaborative and hands-on leads to collaborative and hands-on classroom activities for students. In accordance with Dewey’s philosophy, this instructional strategy allows students to interact with their curriculum. Instructional strategies that follow response to intervention (RTI) guidelines allow for enhancement of learning outcomes for all students, in particular students with learning disabilities (LD). John Dewey would agree with RTI instructional strategies because they are in accordance with his belief in experimental education.

**Statement of the Hypothesis:**

Implementing instructional technology to twenty four second grade students three times a week for forty minutes over four weeks in the afternoon will increase student achievement in the social studies content area.

**Method**

**Particpants:**

The participants will consist of a group of 24 students from P.S. X, a public school in, Brooklyn, New York. The class chosen will be a second grade class studying the social studies content area.

**Instruments:**

The students will be observed prior to technology rich instruction. After observing students throughout the technology rich-infused instruction for one period of 40 minutes, for 3 times a week, for 4 weeks, I will conduct a post-test. Students will complete a survey.

**Experimental Design:**

**Procedure:**

**Results:**

**Discussion:**

**Implications:**

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**Appendix A: Parent Consent Form**

Dear Parent/ Guardian,

I am currently a graduate student in the Childhood Education Masters program at Brooklyn College. I am conducting an action research project to see if the use of technology in schools helps or hinders student learning in the social studies content area. I will be observing if the use of smartboards and laptops increases student achievement in your child’s classroom. Therefore, I am requesting your permission to use your student’s data for my action research project.

All results of the study will be reported as a group study, which means that all students’ names and all corresponding information will remain completely anonymous. If you have any questions or concerns, please feel free to contact me via email at [andreamstern1@gmail.com](mailto:andreamstern1@gmail.com).

Thank you in advance for your support!

Sincerely,

Andrea Stern

I give \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Student’s name) permission to

take part in the research study.

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(Parent/ Guardian Signature) (Date)

**Appendix B: Teacher Consent Form**

Dear Teacher,

I am currently a graduate student in the Childhood Education Masters program at Brooklyn College. I am conducting an action research project to see if the use of technology in schools helps or hinders student learning in the social studies content area. Therefore, I am requesting your permission to use your class to administer and collect data for my action research project. I am requesting to use your class of second-grade students, in which I will implement instructional technology, for one 45-minute period, 3 times a week, for 4 weeks. All of the lessons will be administered during your students’ scheduled classroom instruction for this subject, and all standards and lesson objectives will be addressed and accomplished.

All results of the study will be reported as a group study, which means that all students’ names and all corresponding information will remain completely anonymous. If you have any questions or concerns, please feel free to contact me via email at [andreamstern1@gmail.com](mailto:andreamstern1@gmail.com).

Thank you in advance for your support!

Sincerely,

Andrea Stern

I give \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Student’s name) permission to

take part in the research study.

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(Teacher’s Signature) (Date)

**Appendix C: Principal Consent Form**

Dear Principal,

I am currently a graduate student in the Childhood Education Masters program at Brooklyn College. I am conducting an action research project to see if the use of technology in schools helps or hinders student learning in the social studies content area. Therefore, I am requesting your permission to use your student’s data for my action research project. I am requesting to use one class of second-grade students, in which I will implement instructional technology, for one 45-minute period, 3 times a week, for 4 weeks. All of the lessons will be administered during your student’s scheduled classroom instruction for this subject, and all standards and lesson objectives will be addressed and accomplished.

All results of the study will be reported as a group study, which means that all students’ names and all corresponding information will remain completely anonymous. If you have any questions or concerns, please feel free to contact me via email at [andreamstern1@gmail.com](mailto:andreamstern1@gmail.com).

Thank you in advance for your support!

Sincerely,

Andrea Stern

I give the student \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Student’s name) permission to take part in the research study.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Principal’s Signature) (Date)